

Claims

1. A locking device
with a housing
and with locking and coupling means
which comprise a coupling element (5, 5') and electronically controlled drive means (23),
connected to the housing, with advance means (42) for moving the coupling element (5, 5'),
so that the locking and coupling means may be brought into a first and into a second coupling condition
and with a drive-off element (4) which is designed for actuating bar means,
wherein in the first coupling condition, the coupling element (5, 5') is positioned such that a rotor (2) is not coupled to the drive-off element (4),
wherein in the second coupling condition, the coupling element (5, 5') is positioned such that it couples the drive-off element (4) to the rotor (2),
and wherein the coupling element (5, 5') may be decoupled from the advance means (42) in a manner such that in the second coupling condition it may be moved away from the advance means (42) by way of a rotational movement of the rotor (2).
2. A locking device according to one of the preceding claims, characterised in that the coupling element (5, 5') has an at least partly spherical surface and for example is designed as a ball.
3. A locking device according to one of the preceding claims, characterised in that the coupling element (5, 5') is neither fixedly coupled to the housing nor fixedly coupled to the rotor (2).
4. A locking device according to claim 3, characterised in that the coupling element in its second coupling position given a rotational movement of the rotor (2) is rotated with this in an opening which is formed by recesses (2.1, 4.1) in the rotor (2) and in the drive-off element (4).
5. A locking device according to one of the preceding claims, characterised in that the coupling element is displaceable in a quasi forcibly guided manner by the drive means, for example by way of coupling to a permanent magnet (45) which is connected to the advance means (42).
6. A locking device according to one of the preceding claims, characterised in that the drive means comprises a rotational drive and a travel spindle (42).

7. A locking device according to one of the preceding claims, characterised in that the drive means is provided with spring means (46) which are designed and arranged such that the coupling element (5, 5') located between the first coupling position and the second coupling position may be moved against a spring force in the direction of the first coupling position by way of mechanical action.
8. A locking device according to one of the preceding claims, characterised in that in the first coupling condition the drive-off element (4) is blocked with respect to the housing and in the second coupling condition the drive-off element (4) is not coupled to the housing.
9. A locking device according to claim 8, characterised in that in the first coupling position the coupling element (5, 5') blocks the drive-off element (4) with respect to the housing.
10. A locking device according to claim 8, characterised in that in the first coupling position a blocking element (42) blocks the drive-off element (4) with respect to the housing, wherein the blocking element and the coupling element (5, 5') are arranged such that a movement of the blocking element on transition between the first and the second condition causes a movement of the coupling element (5, 5').
11. A locking device according to one of the preceding claims, for use in a lock cylinder, characterised in that it is free of purely mechanically actuatable tumblers.
12. A locking device according to one of the claims 1 to 10, for use in a lock cylinder, characterised by mechanical tumblers for engaging into recesses of a key.
13. A locking device according to one of the claims 1 to 11, for use in a lock cylinder, characterised by a key-blocking element (24) which by way of introduction of a key (30) into a key opening (2.2) may be moved from a first position into a second position, wherein it is designed and arranged such that in the second position it permits a withdrawal of the key only at certain defined alignments of the rotor (2).
14. A locking device according to claim 13, characterised in that the key-blocking element is designed and arranged such that in its first position it blocks the rotor (2) against rotation.
15. A locking device according to one of the claims 1 to 7 for use with a door handle or a means having a similar effect, characterised in that the rotor (2) may be coupled to an outer door handle or means having a similar effect, that the drive-off element (4) may be coupled to an inner door handle or means having a similar effect and that the coupling element in a first coupling condition is arranged such that the drive-off element (4) is not blocked.

16. A locking device according to claim 15, characterised in that a channel (3.3) is formed in a region of the housing (3) which guides the drive-off element (4), in which the coupling element (5) is movable by way of a rotation of the drive-off element when it is located in the first coupling condition.

17. A locking device according to one of the preceding claims, characterised by an intermediate element (65) with an at least partly spherical surface, which is arranged between the advance means and the coupling element.

18. A locking device according to one of the preceding claims, characterised in that the coupling element comprises an insert (5.1) of a ferromagnetic, preferably permanently magnetised material.